Application No.: 09/852,070   Docket No.: SMQ-122/P6281

AMENDMENTS TO THE SPECIFICATION

Please replace paragraph 14 on page 5 and 6 with the following paragraph.

[0014] The update server 4 further includes a patch-realization map 28 indicating how realizations are associated with the patches 22a, b...n. The map 28 provides an association of unique patch identifiers (IDs) 29a, b...n of the patches 22a, b...n and realizations 32a, b...n, which may have a many-to-many relationship. The map 28 may be implemented as a table of associations or as one or more database tables. A realization 32a, b...n, described below, is a data structure indicating a particular host state. For instance, if the patch 22a, b...n is used to fix a known bug, then the realizations 32a, b...n associated with that patch 22a, b...n in the patch-realization map 28 would indicate the state corrected by the patch 22a, b...n. The update server 4 also includes one or more realization detectors 32~0~a, b...n that are downloaded to the host 2 to write realizations 30a, b...n to the host object 16

Please replace paragraph 15 on page 6 with the following paragraph.

[0015] FIG. 2 illustrates how the realization detectors 30a, b...n interact with the host object 16. The realization detectors 30a, b...n are capable of identifying one or more realizations 32a, b...n that are associated with one or more of the patches 22a, b...n according to the patch-realization map 28. The realizations 32a, b...n comprise registered well-defined versioned strings, each of which identifies a specific state of the host system 2, such as the presence of one or more hardware and/or software resource. Thus, a realization 32a, b...n is associated with a particular state of the host 2. The realization detectors 30a, b...n further include a required realization variable 34 indicating the realization name and version number of base realizations in other realization detectors 30a, b...n that must be verified in the host object 16 in order for the dependent realizations ~detector~ 32a, b...n to complete. Thus, a dependent realization 32a, b...n requires the presence of one or more base realizations in the host object 16, placed there by the execution of a previous realization detector 30a, b...n. Moreover, the realizations 32a, b...n within one realization detector 30a, b...n may be organized in an order such that any realizations dependent on a base realization 32a, b...n within the same realization detector 30a, b...n are processed after the base realizations from which they depend. Still further, the realization detectors 30a, b...n may be organized so that those detectors 30a, b...n including base realizations 32a, b...n are processed before realization detectors 30a, b...n including realizations 32a, b...n dependent therefrom. The realization detectors 30a, b...n include a detector program 36 that executes on the host 2 and analyzes information in the host object 16 to determine whether the state associated with the realizations 32a, b...n exists on the host 2.

2

Application No.: 09/852,070   Docket No.: SMQ-122/P6281

Please replace paragraph 19 on page 8 and 9 with the following paragraph.

[0019] The detector program 36 may include one or more of the following methods that query the host object 16 for information on the availability of particular configuration information 40 and realizations:

isOperatingSystem: returns true if the target host 2 operating system as indicated in the host object 16 is the same as the specified operating system (OS), else returns false.

isOSRelease: returns true if the target host 2 operating system as indicated in the host object 16 is of the specified release, else returns false.

isPlatform: returns true if the target host 2 hardware platform as indicated in the host object 16 is the same as the specified platform, else returns false.

isArchitecture: returns true if the target host 2 processor architecture as indicated in the host object 16 is the same as the specified processor architecture, else returns false.

verifyRealization: verifies that the verified flag 5674 (FIG. 54) in a realization entry 6052a...n in the realization list 5250 is true, i.e. the state checked by the realization exists on the host 2.

hasExactRealization: returns true if the target host object 16 has a realization 30a, b...n in the realization 52 list 50 having same realization name 5070 and same version number 4272 as specified realization.

hasRealization: returns true if the target host object 16 has a realization 30a, b...n in the realization 52 list 50 having same realization name 5070 and same or newer version number 4272 as specified realization.

hasExactSoftwarePackage: returns true if the target host object 16 has an installed software package having the same name and version number as specified software package.

hasSoftwarePackage: returns true if the target host object 16 has an installed software package having the same name and a same or newer version number as specified software package.

hasExactPatchID: returns true if the target host object 16 has an installed patch having the same name and a same version number as specified patch ID.

hasPatchID: returns true if the target host object 16 has an installed patch having the same name and a same or newer version number as specified patch ID.

Please replace the paragraph 20 on page 9 with the following paragraph.

[0020] The detector program 36 may include combinations of one or more of the above methods

3

Application No.: 09/852,070   Docket No.: SMQ-122/P6281

to determine a state of the host 2 with respect to installed hardware and software components from the configuration information 40 and realization entries 52a, b...n included in the host realization list 5250. The state determined by the detector program 36 may indicate whether an update is not likely to operate on the host 2 system. Additionally, when the patch code 24 comprises a fix, such as code to eliminate a bug, the state determined by the detector program 36 may indicate whether the configuration of the host 2 is particularly susceptible to the bug the patch code 24 is intended to fix.

Please replace paragraph 26 on page 12 with the following paragraph.

[0026] FIG. 8 illustrates logic implemented in the host update program 10 to generate a patch list 18 which comprises the patches to present to the user for selection to install on the host 2. At block 250, the host update program 10 uses the patch-realization mapping 28 to determine all patch IDs 29a, b...n associated with realizations 32a, b...n written to the host realization list 50 after processing the downloaded realization detectors 30a, b...n. A loop is performed at block 252 to 262. At block 254, the host update program 10 executes the patch expression(s) 26 to analyze the host object 16 to determine whether the host 2 includes specified software and/or hardware components and/or whether specific realizations 52a, b...n in the realization list 50 have been verified. If (at block 254) the patch expression 2826 returns true, then the host update program 10 adds (at block 256) the patch *i* to the patch list. From block 258 or the no branch of block 256, if the patch expression returns false, i.e., the patch expression 2826 conditions are not satisfied, control proceeds (at block 260) back to block 252 to consider the next downloaded patch 22a, b...n.

Please replace paragraph 28 on page 12 and 13 with the following paragraph.

[0028] The architecture described herein allows software vendors who provide patches for their installed products to make patches available on an update server 4. The described implementations provide a technique where the patch itself is able to determine whether the patch installation is compatible with the host 2 configuration. The realization detectors 30a, b...n are able to verify the capabilities of the host 2 indirectly through a host object 16. In certain described implementations, the only modification the detector programs 36 included with the realization detector 30a, b...n may make is to write verification information to the realization list 5250 in the host object 16. These restrictions on the access provided to the realization detectors 30a, b...n protects the host system 2 from the realization detector 30a, b...n inadvertently or malevolently performing harmful operations on the host system 2.

4

Docket No.: SMQ-122/P6281

Please replace paragraph 32 on page 14 with the following paragraph.

[0032] With the network implementation described with respect to FIG. ~~109~~9, the network administrator does not have to interrogate or query the different hosts 302a, b...n, and may instead determine patches to apply using only the host objects 316a, b...n. In this way, the described implementations provide a tool to facilitate the application of patches to multiple hosts 302a, b...n managed by a common network administrator.

Please replace paragraph 33 on page 14 and 15 with the following paragraph.

[0033] As discussed each patch 22a, b...n includes patch expressions 26 comprising a script that when executed processes the configuration information ~~50~~40 and realizations 52a,...n in the host object 16 to determine whether the patch 22a, b...n should be applied to the host 2. FIG. ~~11~~10 provides attribute statements used to determine attributes of the installation of a patch 22a, b...n to the host 2, where the patch expressions 26 provided with a target patch 22a, b...n may include one or more of the attribute statements to determine attributes of the installation of the patch 22a, b...n to the host 2 given the host configuration.

Please replace paragraph 36 on page 16 and 17 with the following paragraph.

[0036] The constraint attribute 406 does not echo a patch list and instead uses one or more conditional statements, that if evaluated as true indicates the attribute that the target patch 22a, b...n can be installed on the host. The conditional statements query the host object 16 for information on the availability of particular hardware and software ~~resources 50~~configuration information 40, and/or realizations 30a, b..n, and return a true/false boolean value. Following are the conditional statements that may be used in the attribute statements 400, 402, 404, 406.

Please replace paragraph 48 on page 21 with the following paragraph.

[0048] In the described implementations, one host object 16 maintained all the information on available hardware and software ~~resources 50~~configuration information 40 and the realization list ~~52~~50 (FIG. ~~4~~2). Alternatively, such information may be distributed across multiple data objects maintained for the host 2.

5